

# Work Order ID 70207

Tuesday, May 31, 2011 11:07:52 AM

Page 1

Item ID: D206-667-247TRN

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Assembly, Mid Aft

Start Date: 5/31/2011 Start Qty: 1.00

Cust Item ID:

Required Date: 6/8/2011 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan:

Date: 11-05-31

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D206-667-247

A

100

0.00



Mori Seiki

MORI SEIKI CNC LATHE LARGE

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DTxxxx on both ends as per Folio FB030  
2-Turn first side as per Folio FB030  
3-File down transition lines smooth.

mm 11/06/09

110

0.00



QC

QC1- Inspect dimensions to dimension sheet

Memo

0.00

Quality Control

mm 11/06/09

120

0.00



Mori Seiki

MORI SEIKI CNC LATHE LARGE

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FB030  
2-File down transition lines smooth.  
3-Remove sand and plugs

mm.L 11/06/09

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action		Section B		Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date				

**NOTE:** Date & initial all entries

# Work Order ID 70207

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Page 2

Item ID: D206-667-247TRN

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Assembly, Mid Aft

Start Date: 5/31/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 6/8/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130  QC Quality Control	QC1- Inspect dimensions to dimension sheet  Memo	0.00  0.00				<u>1</u>	<u>0</u>		
140  QC Quality Control	QC8- Inspect parts - second check  Memo	0.00  0.00				<u>1</u>	<u>0</u>		
150  HandFXtube Hand Finishing Crosstubes	Crosstubes Chemical Conversion  Memo	0.00  0.00							

*and 11/06/10*

*and 11-06-10*

*SAD  
NW 11-06-13*

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action		Section B		Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng		Sign & Date			

NOTE: Date & initial all entries

**Work Order ID 70207**

Tuesday, May 31, 2011 11:07:52 AM



Page 3

Item ID: D206-667-247TRN

Accept



Setup Start



Revision ID:

Item Name: Crosstube Assembly, Mid Aft

Stop



Start Date: 5/31/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 6/8/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control



11-6-13

170

Packaging

0.00

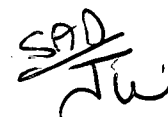


Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack  
Location: L/G

11-6-13

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/6/13

CL 11/06/13

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action		Section B	Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

# Picklist Print

Tuesday, May 31, 2011 11:07:58 AM

Page 1

Work Order ID: 70207

Parent Item: D206-667-247TRN

Parent Item Name: Crosstube Assembly, Mid Aft



Start Date: 5/31/2011

Required Date: 6/8/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP rev:A 11.01.06 new issue DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6004-115 		Manufactured	No			100	Each	34.0000	1	1			
Crosstube Material													

Location

Loc Qty

Loc Code

LG

34

34685

5

38336

29

mm.L 11/06/09

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action		Section B		Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng		Sign & Date			

NOTE: Date & initial all entries



<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> <del>701475</del> <b>70307</b>
<b>Description:</b> Crosstube Assembly		<b>Part Number:</b>
<b>Inspection Dwg:</b>	<b>Rev:</b>	<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.490	+0.005	2.494	✓	micr	<del>JF-01</del> CNC-04
	2.025	+0.005	2.030	✓	"	
	2.079	+0.005	2.084	✓	"	
	2.145	+0.005	2.150	✓	"	
	2.209	+0.005	2.214	✓	"	
	2.287	+0.005	2.292	✓	"	
	2.363	+0.005	2.367	✓	"	
	0.200	±.010	0.205	✓	vern	JF-01
	R0.063	±.010	0.063	✓	RG	"
	R2.00	±.010	2.00	✓	RG	
	R0.063	±.010	.063	✓	RG	
	4.500	±.010	4.500	✓	vern	JF-01
SIDE B	2.209		2.214	✓	micr	<del>JF-01</del> CNC-04
	2.490	+0.005	2.493	✓		
	2.025	+0.005	2.030	✓		
	2.079	+0.005	2.084	✓		
	2.145	+0.005	2.150	✓		
	2.287	+0.005	2.291	✓		
	2.363	+0.005	2.365	✓		
	0.200	±.010	0.205	✓	vern	JF-01
	R0.063	±.010	0.063	✓	RG	
	R2.00	±.010	2.00	✓	"	
	R0.063	±.010	.063	✓	"	
	4.500	±.010	4.500	✓	vern	JF-01
	99.76	±.020	99.76	✓	tape	mm. v. 02

<b>Measured by:</b> <i>mm. L...</i>	<b>Audited by:</b> <i>[Signature]</i>	<b>Preliminary Approval:</b>
<b>Date:</b> 11/06/09	<b>Date:</b> 11.06.10	<b>Date:</b>

Rev	Date	Change	Revised by	Approved
B	10.04.14	Added preliminary approval	KJ	

*10.04.15*

Item	Qty -247	Part Number	Description
1	X	D206-667-247	CROSSTUBE ASSEMBLY (206L MID AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

#### GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115  
FINISHED LENGTH = 99.76±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-247" AND BATCH NUMBER ON  
INSIDE OF CLIFF PER DART QSI 044 6.4 (VIBRATING STYLUS).
- 7) WEIGHT: 21.1 lbs (-607 = 17.7 lbs)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY.  
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE  
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.05" THICK LAYER OF MAGNOBOND 6398 PER QSI  
016. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE  
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE  
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE  
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS  
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT  
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN  
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

CD 11/06/09

W10: 70207

**RELEASED**  
2011-05-24

A	NEW ISSUE	CP	10.12.23
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.12.23		

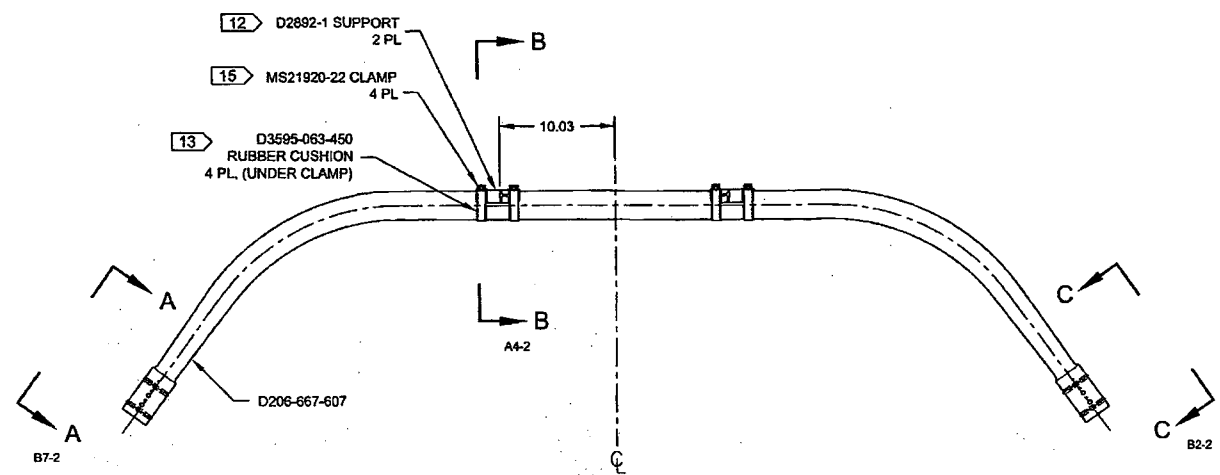
  

<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D206-667-247	REV. A SHEET 1 OF 4
TITLE CROSSTUBE ASS'Y (206L MID AFT)	SCALE NTS
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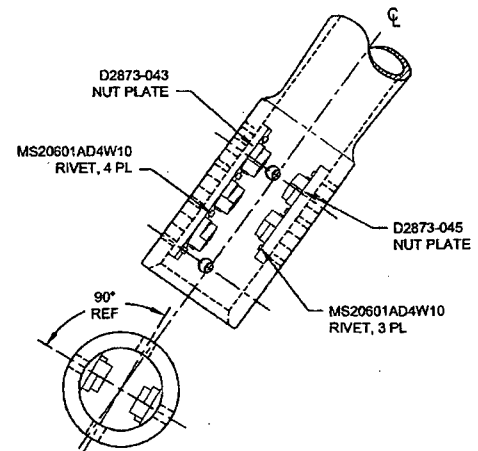
8 7 6 5 4 3 2 1

D  
C  
B  
A

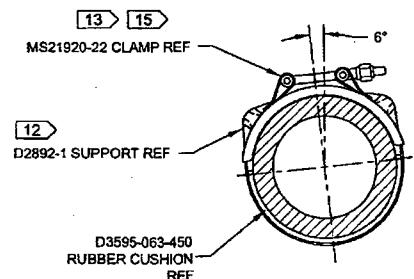
D  
C  
B  
A



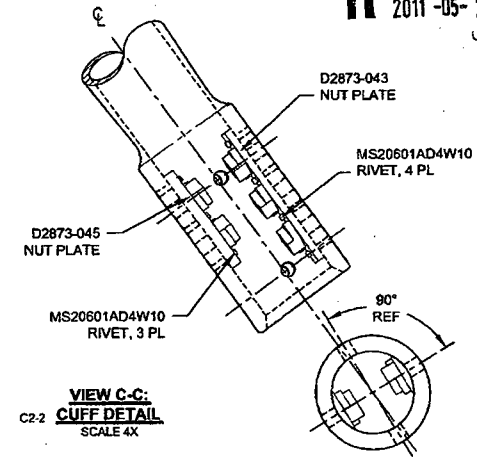
**D206-667-247**  
**ASSEMBLY DETAIL**  
(VIEW LOOKING FWD)



**VIEW A-A:**  
**CUFF DETAIL**  
SCALE 4X



**SECTION B-B**  
SCALE 5X

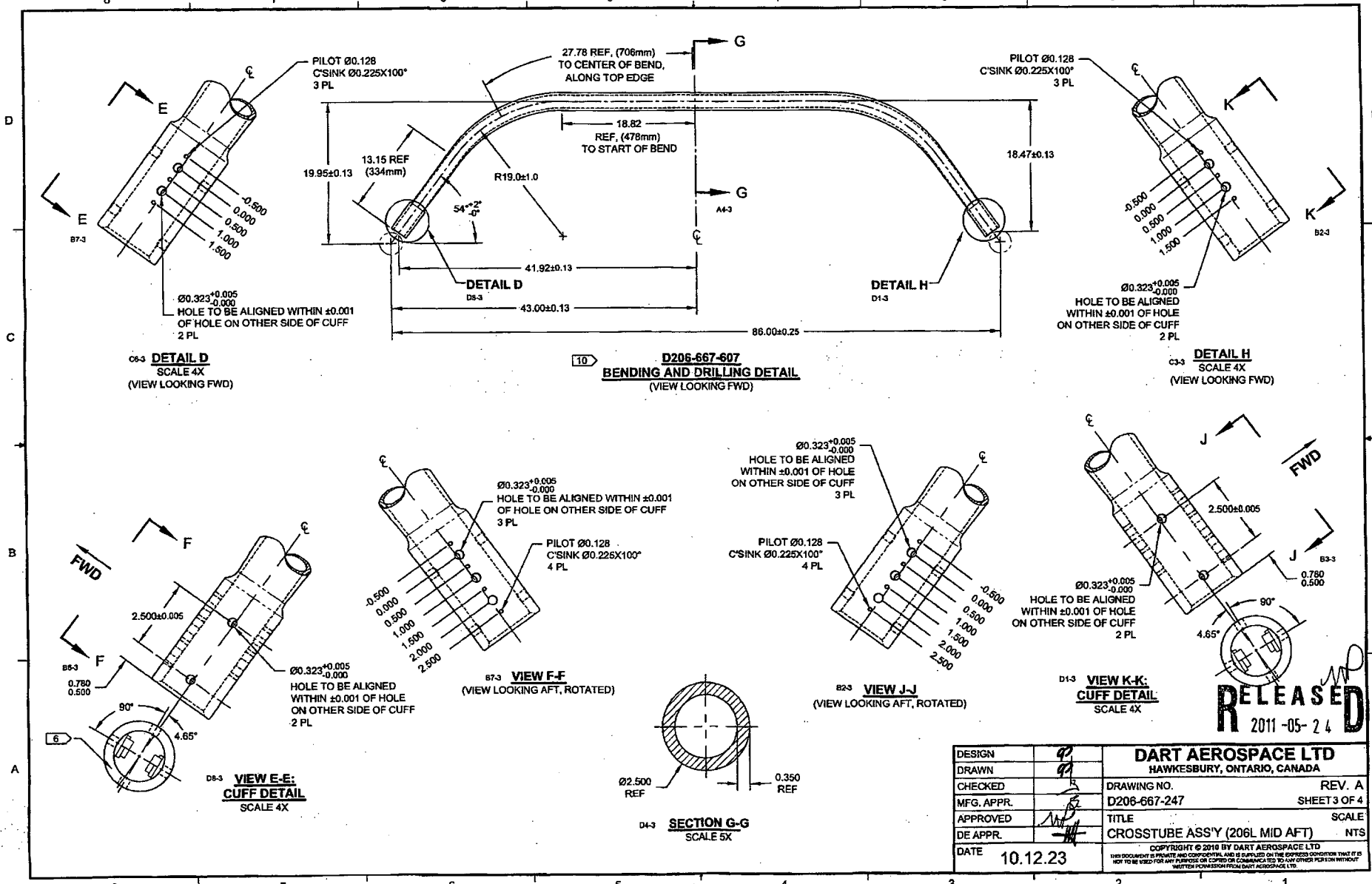


**VIEW C-C:**  
**CUFF DETAIL**  
SCALE 4X

DESIGN	42	<b>DART AEROSPACE LTD</b>	
DRAWN	49	HAWKESBURY, ONTARIO, CANADA	
CHECKED	5	DRAWING NO.	REV. A
MFG. APPR.	5	D206-667-247	SHEET 2 OF 4
APPROVED	5	TITLE	SCALE
DE APPR.	5	CROSSTUBE ASS'Y (206L MID AFT)	NTS
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8 7 6 5 4 3 2 1

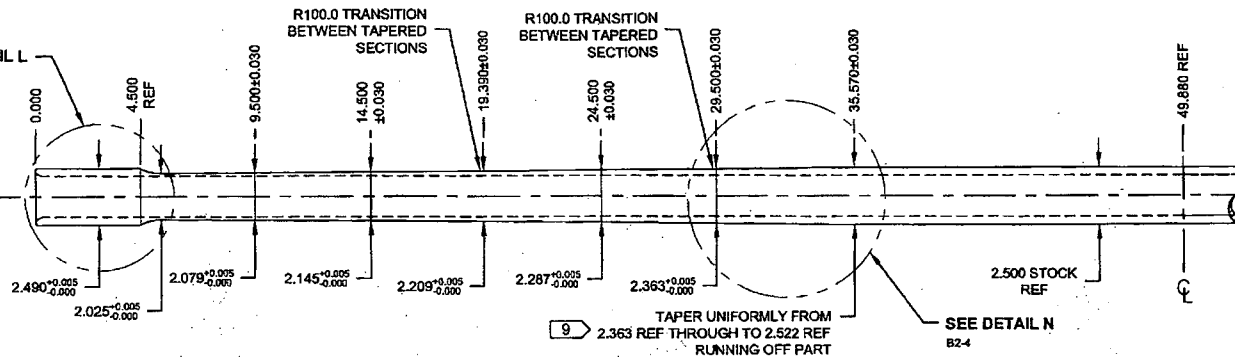
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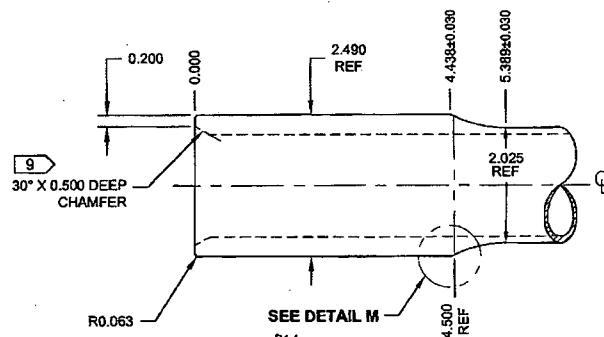
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2011-05-24

DESIGN	97	<b>DART AEROSPACE LTD</b>	
DRAWN	97	HAWKESBURY, ONTARIO, CANADA	
CHECKED	97	DRAWING NO.	REV. A
MFG. APPR.	97	D206-667-247	SHEET 3 OF 4
APPROVED	97	TITLE	SCALE
DE APPR.	97	CROSSTUBE ASS'Y (206L MID AFT)	NTS
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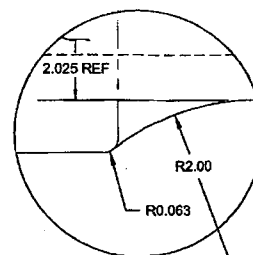
SEE DETAIL L  
B7-4



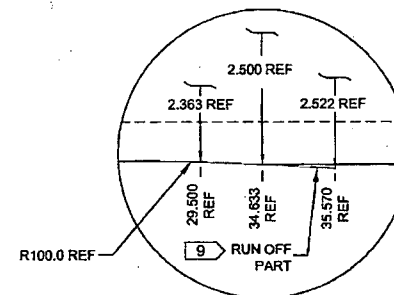
**TURNING DETAIL**



C7-4 **DETAIL L: CROSSTUBE CUFF**  
SCALE 2.5X



B6-4 **DETAIL M: CUFF TRANSITION**  
NOT TO SCALE



C4-4 **DETAIL N: TAPER RUN-OFF**  
NOT TO SCALE

**RELEASED**  
2011-05-24

DESIGN	90	<b>DART AEROSPACE LTD</b>	
DRAWN	91	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D206-667-247	SHEET 4 OF 4
APPROVED		TITLE	SCALE
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